

Recovery Plan Action Status

Plan Name: Recovery Plan for *Kokia cookei*

Plan Status: Final

Plan Date: 27-May-98

Lead Agency: USFWS

Lead Office: Pacific Islands Fish And Wildlife Office

(808)

792-9400)

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Cooke's koki'o (<i>Kokia cookei</i>)	1	1	Increase number of grafted plants to at least 100 individuals.	Ongoing Not Current	Prior to FY 1995		Botanical Gardens, Hawaii Department of Land and Natural Resources	Management: Propagation	Contract, Graduate Student, Internal Technical Assistance, Species Expert, Volunteer	
Cooke's koki'o (<i>Kokia cookei</i>)	2	21	Conduct directed research with grafting techniques and materials	Ongoing Current	Prior to FY 1995		Botanical Gardens, Hawaii Department of Land and Natural Resources	Research: Propagation	Contract, Graduate Student, Internal Technical Assistance, Species Expert, Volunteer	Many botanical gardens and arboreta continually test new methods to propagate additional plants.
Cooke's koki'o (<i>Kokia cookei</i>)	2	22	Conduct directed research with air layering techniques	Ongoing Current	Prior to FY 1995		Botanical Gardens, Hawaii Department of Land and Natural Resources	Management: Propagation	Contract, Graduate Student, Internal Technical Assistance, Species Expert, Volunteer	To date, air layering has not been successful.
Cooke's koki'o (<i>Kokia cookei</i>)	2	23	Conduct directed research with tissue culture techniques	Ongoing Current	Prior to FY 1995		Botanical Gardens	Management: Propagation	Contract, Graduate Student, Internal Technical Assistance, Species Expert, Volunteer	Lyon Arboretum is continual testing new tissue culture techniques. To date, this method has not been very successful.

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Cooke's koki'o (Kokia cookei)	2	31	Continue directed research on embryo culture methodology.	Ongoing Current	Prior to FY 1995		Botanical Gardens	Management: Propagation	Contract, Graduate Student, Internal Technical Assistance, Species Expert, Volunteer	Lyon Arboretum is continual testing new techniques, and to date, Lyon Arboretum micropropagation lab has excised embryos from immature seeds produced in cultivate before they were aborted by the grafted plant and has them growing in micropropagation and has transferred some of them to the greenhouse and they are now growing plants. They will not be outplanted, but will be used as stock to generate seeds for reintroduction, if they produce viable seeds.
Cooke's koki'o (Kokia cookei)	2	32	Establish a program of artificially controlled introgressive hybridization of Kokia cookei with another Kokia species	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources	Management: Propagation	Contract, Graduate Student, Internal Technical Assistance, Species Expert, Volunteer	
Cooke's koki'o (Kokia cookei)	1	411	Produce and select plants for reintroduction efforts on Molokai.	Ongoing Not Current	Prior to FY 1995		Botanical Gardens, Hawaii Department of Land and Natural Resources	Management: Propagation, Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert, Volunteer	In the 1990's, an attempt was made to reintroduce grafted plants on Molokai, but all of the individuals died. No additional attempts have been made on Molokai because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.

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Cooke's koki'o (Kokia cookei)	1	412	Identify four specific areas on Molokai for reintroduction.	Ongoing Not Current	Prior to FY 1995		Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, U.S. Geological Survey, Biological Resources Division, National Park Service, Private landowners	Management: Planning, Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert, Volunteer	In the 1990's, an attempt was made to reintroduce grafted plants at Mahanaloa on Molokai, but all of the individuals died. No additional attempts have been made on Molokai because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	1	413	Secure sites identified in Task number 412	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, Private landowners	Acquisition: General	Contract, Internal Administrative, Internal Technical Assistance, Species Expert	No attempts have been made since the failed 1990 trial because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	1	4141	Fence reintroduction sites and exclude ungulates.	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, Private landowners	Management: Depredation Control, Management: Predator and Competitor Control	Contract, Graduate Student, Internal Field Assistance, Volunteer	No fencing has been constructed to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	2	4142	Establish vegetation and threat monitoring.	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, National Park Service	Research: Demographic Studies, Research: Habitat Requirements, Research: Habitat Status, Research: Management Techniques, Research: Population Surveys	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	The monitoring of the Mahanaloa site ended when the last plant died and no attempts have been made to reintroduce this species on Molokai because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species, so this task was abandoned.

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Cooke's koki'o (Kokia cookei)	1	4143	Manage sites to ensure protection via actions prescribed by fire management plan.	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, Private landowners	Management: Habitat Maintenance and Manipulation	Contract, Graduate Student, Internal Field Assistance, Volunteer	No attempts have been made to reintroduce this species or manage reintroduction sites because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	3	4144	Plant other native dryland species in the fenced reintroduction sites.	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, U.S. Geological Survey, Biological Resources Division, National Park Service	Management: Habitat Maintenance and Manipulation, Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	
Cooke's koki'o (Kokia cookei)	1	415	Plant Kokia cookei in the fenced reintroduction sites.	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources	Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Volunteer	No attempts have been made to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	1	416	Provide postplanting care for Kokia cookei.	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, U.S. Geological Survey, Biological Resources Division, Private landowners	Management: Habitat Maintenance and Manipulation, Management: Predator and Competitor Control, Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Volunteer	No attempts have been made to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.

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Cooke's koki'o (Kokia cookei)	1	421	Produce and select plants for reintroduction efforts on Lanai.	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources	Management: Propagation, Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert, Volunteer	No attempts have been made to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	1	422	Identify two specific areas on Lanai for reintroduction.	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, U.S. Geological Survey, Biological Resources Division, Private landowners	Management: Planning	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert	No attempts have been made to identify sites to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	1	423	Secure sites identified in Task 422	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, Private landowners	Acquisition: General	Internal Administrative, Internal Field Assistance, Internal Technical Assistance, Species Expert	No attempts have been made to locate and manage sites to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	1	4241	Fence reintroduction sites and exclude ungulates.	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, Private landowners	Management: Habitat Maintenance and Manipulation, Management: Predator and Competitor Control	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	No attempts have been made to fence sites to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.

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Cooke's koki'o (Kokia cookei)	2	4242	Establish vegetation and threat monitoring.	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, National Park Service	Research: Demographic Studies, Research: Habitat Requirements, Research: Habitat Status, Research: Management Techniques, Research: Population Surveys	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	No attempts have been made to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species, so this task has not been initiated.
Cooke's koki'o (Kokia cookei)	1	4243	Manage sites to ensure protection via actions prescribed by fire management plan.	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, National Park Service	Management: Habitat Maintenance and Manipulation	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert, Volunteer	No attempts have been made to manage sites to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	3	4244	Plant other native dryland species in the fenced reintroduction sites.	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, National Park Service	Management: Habitat Maintenance and Manipulation, Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	
Cooke's koki'o (Kokia cookei)	1	425	Plant Kokia cookei in the fenced reintroduction sites.	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources	Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	No attempts have been made to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	1	426	Provide post planting care for Kokia cookei.	Not Started			Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, Private landowners	Management: Habitat Maintenance and Manipulation, Management: Predator and Competitor Control, Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	No attempts have been made to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.

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Cooke's koki'o (Kokia cookei)	1	431	Produce and select plants for reintroduction efforts on Maui.	Ongoing Not Current	FY 2000 - FY 2004		Botanical Gardens, Hawaii Department of Land and Natural Resources, U.S. Geological Survey, Biological Resources Division	Management: Propagation	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert, Volunteer	BRD has outplanted a few seedlings at Puu o Kali that established on Kauai from plants grown on a private preserve. There were several other species of Kokia and other Hibiscus relatives nearby, so it is unclear whether these seedlings are pure Kokia cookei. To date, the genetics of these plants have not been examined to determine the purity of the stock. No additional attempts have been made to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	1	432	Identify two specific areas on Maui for reintroduction.	Partially Complete	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, U.S. Geological Survey, Biological Resources Division, National Park Service, Private landowners	Management: Planning	Contract, Graduate Student, Internal Field Assistance, Internal Technical Assistance, Species Expert	BRD has outplanted a few seedlings at Puu o Kali. No additional attempts have been made to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.

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Cooke's koki'o (Kokia cookei)	1	433	Secure sites identified in Task number 432	Partially Complete	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, U.S. Geological Survey, Biological Resources Division, Private landowners	Acquisition: Management Agreement	Contract, Internal Administrative, Internal Field Assistance, Internal Technical Assistance, Species Expert	BRD has secured an agreement with the private landowner to manage Puu o Kali. No additional attempts have been made to secure a site to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	1	4341	Fence reintroduction sites and exclude ungulates.	Ongoing Not Current	FY 2000 - FY 2004		U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, U.S. Geological Survey, Biological Resources Division, National Park Service, Private landowners	Management: Habitat Maintenance and Manipulation, Management: Predator and Competitor Control	Contract, Graduate Student, Internal Field Assistance, Volunteer	BRD has fenced Puu o Kali, but is having difficulty removing all the deer from the fenced enclosure. No additional attempts have been made to manage a site to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	2	4342	Establish vegetation and threat monitoring.	Ongoing Not Current	FY 2000 - FY 2004		Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, U.S. Geological Survey, Biological Resources Division, National Park Service	Research: Demographic Studies, Research: Habitat Requirements, Research: Habitat Status, Research: Management Techniques, Research: Population Surveys	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	Puu o Kali is monitored by BRD, but since no attempts have been made to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species, this task has not been initiated for an additional site.

Species	Action Priority #	Action #	Action Description	Action Status	Est. Initiation Date	Est. Completion Date	Responsible Parties	Work Type	Labor Type	Action Comments
Cooke's koki'o (Kokia cookei)	1	4343	Manage sites to ensure protection via actions prescribed by fire management plan.	Ongoing Not Current	FY 2000 - FY 2004		Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, U.S. Geological Survey, Biological Resources Division, Private landowners	Management: Habitat Maintenance and Manipulation	Contract, Graduate Student, Internal Field Assistance, Volunteer	BRD is managing for fire prevention at Puu o Kali. No additional attempts have been made to manage a site to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species.
Cooke's koki'o (Kokia cookei)	3	4344	Plant other native dryland species in the fenced reintroduction sites.	Ongoing Not Current	FY 2000 - FY 2004		Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, National Park Service	Management: Habitat Maintenance and Manipulation, Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	BRD has initiated this task for Puu o Kali.
Cooke's koki'o (Kokia cookei)	1	435	Plant Kokia cookei in the fenced reintroduction sites.	Ongoing Not Current	FY 2000 - FY 2004		Botanical Gardens, Hawaii Department of Land and Natural Resources, U.S. Geological Survey, Biological Resources Division	Management: Reintroduction	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	BRD outplanted a few seedlings at Puu o Kali that established on Kauai from plants grown on a private preserve. There were several other species of Kokia and other Hibiscus relatives nearby, so it is unclear whether these seedlings are pure Kokia cookei. To date, the genetics of these plants have not been examined to determine the purity of the stock. No additional attempts have been made to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species. These plants did not survive.

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Cooke's koki'o (Kokia Cookei)	1	436	Provide postplanting care for Kokia Cookei.	Ongoing Not Current	FY 2000 - FY 2004		Botanical Gardens, Hawaii Department of Land and Natural Resources, The Nature Conservancy of Hawaii, U.S. Geological Survey, Biological Resources Division, National Park Service, Private landowners	Management: Habitat Maintenance and Manipulation, Management: Predator and Competitor Control	Contract, Graduate Student, Internal Field Assistance, Species Expert, Volunteer	BRD cares for the few outplanted seedlings at Puu o Kali. No additional attempts have been made to reintroduce this species because no seedlings are available for reintroduction that are not grafted onto root stock of other endangered species. Care halted when all plants died.
Cooke's koki'o (Kokia Cookei)	3	51	Validate the number of individuals and populations necessary for recovery of Kokia Cookei.	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division, Hawaii Department of Land and Natural Resources, U.S. Geological Survey, Biological Resources Division	Other: Regulations, Research: Demographic Studies, Research: Genetics, Research: Habitat Requirements, Research: Habitat Status, Research: Population Surveys	Internal Field Assistance, Species Expert	
Cooke's koki'o (Kokia Cookei)	3	52	Refine and revise downlisting and delisting criteria, as necessary.	Not Started			U.S. Fish and Wildlife Service, Ecological Services Division	Other: Regulations, Research: Demographic Studies, Research: Genetics, Research: Habitat Requirements, Research: Habitat Status, Research: Population Surveys	Internal Field Assistance, Species Expert	
Cooke's koki'o (Kokia Cookei)	3	53	Evaluate species for downlisting and delisting.	Ongoing Not Current	FY 2007		U.S. Fish and Wildlife Service, Ecological Services Division	Other: Regulations, Research: Demographic Studies, Research: Genetics, Research: Habitat Requirements, Research: Habitat Status, Research: Population Surveys	Internal Field Assistance, Species Expert	5-year review initiated.